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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/645,103	08/21/2003	Neil Muncy	MOD SCI 202-KFM	7267

10037 7590 01/10/2007
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EXAMINER

KURR, JASON RICHARD

ART UNIT	PAPER NUMBER
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2615

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/10/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/645,103

Applicant(s)

MUNCY ET AL.

Examiner

Jason R. Kurr

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 7, 9, 10 and 16-19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 11/7/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Tanaka et al (US 5,272,756).

With respect to claim 1, Tanaka discloses an apparatus for generating and displaying images for determining the quality of audio reproduction in a surround sound system that produces a left total audio signal ("Lt signal") and a right total audio signal ("Rt signal")(col.2 ln.56-63), said apparatus comprising: (a) a left audio signal input for receiving the signal Lt (fig.5 #10); (b) a right audio signal input for receiving the signal Rt (fig.5 #20); (c) a display processor (fig.5 #30) connected to said left and right audio inputs and having a display control output, for producing a display control signals (fig.5 "L+R","L-R") at said output in dependence upon said signals Lt and Rt; and (d) a graphic image display (fig.5 #64), coupled to said display control output, for displaying a two-dimensional image within an X and Y coordinate system, wherein relative in-phase components of said signals Lt and Rt are represented as positive Y coordinate points in the image, wherein relative out-of-phase components of said signals Lt and Rt are represented as negative Y coordinate points in the image, and wherein the respective

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amplitudes of the signals Lt and Rt are represented as negative X and positive X coordinate points, respectively, in the image (fig.2a,2b, col.1 ln.51-68. fig.11a,11b).

With respect to claim 2, Tanaka discloses the apparatus defined in claim 1, wherein the signal Lt is comprised of signal elements unique to the left sound channel only (Lo), plus equal level and in-polarity signal elements common to both Lt and Rt (C), plus equal level but out-of-polarity signal elements common to both Lt and Rt (Surr) (col.5 ln.47-67).

With respect to claim 3, Tanaka discloses the apparatus defined in claim 1, wherein the signal Rt is comprised of signal elements unique to the right sound channel only (Ro), plus equal level and in-polarity signal elements common to both Lt and Rt (C), minus equal level but out-of-polarity signal elements common to both Lt and Rt (-Surr) (col.5 ln.47-67).

With respect to claim 4, Tanaka discloses the apparatus defined in claim 1, wherein the display processor calculates each X-Y coordinate point for display in accordance with the formulae: $Y = C + (-Surr)$; and $X = -Lo + Ro$; where Lo are signal elements unique to the left sound channel only, Ro are signal elements unique to the right sound channel only, C are equal level and in-polarity signal elements common to both signals Lt and Rt, and Surr are equal level but out-of-polarity signal elements common to both signals Lt and Rt (col.1 ln.51-68).

With respect to claim 5, Tanaka discloses the apparatus defined in claim 1, wherein the display processor processes the signals Lt and Rt in analog form, to produce analog display control signals at said output (col.5 ln.59-67).

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With respect to claim 6, Tanaka discloses the apparatus defined in claim 5, wherein said display processor produces an analog X coordinate control signal by summing the outputs of (1) a first full wave rectifier (fig.7A #720) which is connected to the left audio signal input to receive the signal Lt and which produces a negative output signal, and (2) a second full wave rectifier (fig.7A #722) which is connected to the right audio signal input to receive the signal Rt and which produces a positive output signal (col.7 ln.17-34).

With respect to claim 8, Tanaka discloses the apparatus defined in claim 6, wherein the display processor further comprises a display compression generator connected to a gain control amplifier at said output to adjust the gain of the X coordinate control signal (fig.5 #66).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al (US 5,272,756) in view of Bradford (US 4,691,358).

With respect to claim 11, Tanaka discloses the apparatus defined in claim 1, however does not disclose expressly wherein the display processor samples the signals Lt and Rt at a given sampling frequency to produce digital signals and processes the

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digital signals in digital form to produce digital display control signals at said output.

The display processor of Tanaka merely adds or subtracts analog signals, which are in turn used to control the display.

Bradford discloses an apparatus that provides a display of the stereo image and aural perspective of stereophonic sounds. The invention of Bradford also uses analog circuitry to accomplish the task of displaying the stereophonic sounds as images, however Bradford does disclose that the major components of the invention could be replaced by digital components (col.4 ln.48-58). At the time of the invention it would have been obvious to a person of ordinary skill in the art that the analog components in the invention of Tanaka could be replaced by digital components such as a digital display and digital processor to achieve the same results as the disclosed analog circuitry, as taught by Bradford. The motivation for doing so would have been to provide a system that would be capable of calculating and displaying other sound features, such as tempo and timbre by simply reprogramming the digital processor.

With respect to claim 12, Tanaka discloses the apparatus defined in claim 11, however does not disclose expressly wherein the display processor samples the signals Lt and Rt at a frequency which is at least twice the maximum frequency of the signals Lt and Rt. Official Notice is taken that it is well known in the art to sample signals at a frequency twice that of the maximum frequency of the sampled signal. This is known as the Nyquist Theorem. At the time of the invention it would have been obvious to use a digital processor to sample the signals Lt and Rt at a frequency, which is at least twice the maximum frequency of the signals Lt and Rt. The motivation for doing so would

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have been to acquire an adequate number of data samples to properly convert the analog Lt and Rt into digital signals.

With respect to claim 13, Tanaka discloses the apparatus defined in claim 11 in view of Bradford, wherein the display processor calculates the digital X and Y coordinates of each successive point to be displayed. The analog circuit of Tanaka continuously calculates and displays the signals on X and Y coordinates, therefor as shown by Bradford in the rejection of claim 11, a digital circuit would be able to replace the analog circuit and achieve the same result, such as calculating and displaying each successive point.

With respect to claim 14, Tanaka discloses the apparatus defined in claim 13, wherein the display processor stores a plurality of points to produce a scatter plot as a single image frame and thereafter passes said image frame to said output for display (fig.2c, 2d).

With respect to claim 15, Tanaka discloses the apparatus defined in claim 14, wherein a plurality of image frames, each comprising said plurality of points, are displayed in succession to form a video image (fig.2c, 2d).

Allowable Subject Matter

Claims 7,9-10 and 16-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cleary, Jr. et al (US 6,977,653 B1) discloses a surround sound display.

Eastty (US 6,021,204) discloses the analysis of audio signals.

Everett et al (US 6,532,024 B1) discloses a multi format on-screen monitor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason R. Kurr whose telephone number is (571) 272-0552. The examiner can normally be reached on M-F 10:00am to 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on (571) 273-8300. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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